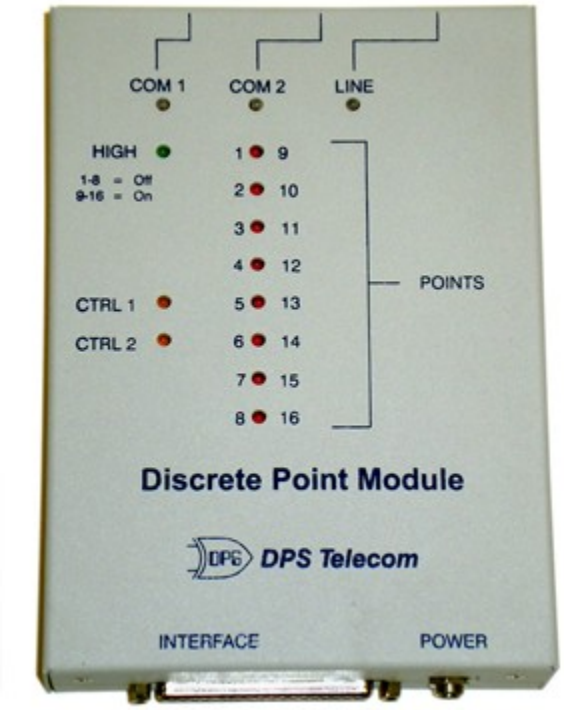
DPS Telecom

"Your Partners in Network Alarm Monitoring"

DPM & DPM-216

USER MANUAL



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1 DPM and DPM-216

1.1 About This Manual

There is a separate user manual for T/DPMW. You are reading the hardware manual for the DPM and DPM-216.

This Hardware Manual provides instructions for hardware installation and operating the unit. The T/DPMW User Manual, included on the Resource CD, provides instructions for provisioning and monitoring the DPM and DPM-216 using the software utility.

1.2 Overview

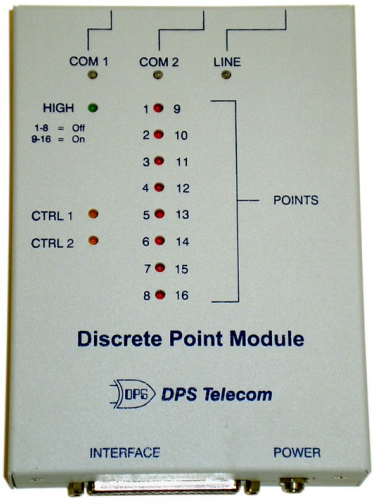

Fig. 1 *- The compact design of the DPM and DPM-216 allow for mounting on any flat surface.*

The Discrete Point Module (DPM)

DPS's Discrete Point Module, teamed with your local pager service, will let you know when you have an important event occurring at some isolated location. The DPM can detect any event that can be translated into an electrical contact closure, such as a micro switch or relay. Door openings and equipment failures are typical events that it can report to your pager or cell phone. In addition, you can contact the DPM from any tone dialing telephone and, by password identification, activate remote devices like door locks or security lights.

The Discrete Point Module 216 (DPM-216)

The Discrete Point Module 216 is connected to a central monitoring device via a *dedicated communications facility*. The DPM-216 is a fixed-facility version of the DPM, with RS232, RS422, RS485 or 202 Modem interface. These are the main differences between the DPM and DPM-216. The DPM-216 can also detect any event that can be translated into an electrical contact closure, such as a micro switch or relay, to notify you of important events.

DPM
Features:

- Pages you when critical events occur
- 16 Alarm inputs, 2 control outputs
- Supports both alpha and numeric pagers

DPM-216 Features:

- Notifies the central monitoring station of critical events
- 16 alarm inputs, 2 control outputs
- Compact, economical package

- Compact, economical package
- DTMF phone control
- Interface large networks via dial facility
- Reports to IAM or T/MonNOC Masters
- Download configuration from a PC
- Automatically operate derived controls
- Optional ASCII craft port access
- AC or DC powered
- Interface large networks via dedicated facility
- Reports to IAM or T/MonNOC Masters
- TBOS or DCP family protocols
- Download configuration from a PC
- AC or DC powered
- Non-volatile RAM maintains configuration when off

Configuration Software
The DPM has programmable features such as back-up pager numbers and written alarm point descriptions. The DPM-216's programmable features include alarm descriptions and polarity. Configuring these features is easy using T/DPMW, a Windows-based software provided with the unit at no extra charge. Programming is done locally through the serial port of a computer (for both units) or by dialing the DPM from any modem-equipped PC (DPM only) The software will also monitor the alarm states and operate control relays. **To download T/DPMW, go to www.dpstele.com/support. Login and click on the "Firmware / Software Downloads" button.**

Derived Controls
In addition to being activated remotely, control relays may be activated internally by a combination of existing alarms, using a programmable equation (derived control). Each control point may have up to two equations defined. For example, maybe you'd like to toggle a relay every time a door alarm is triggered.

ASCII Craft Port Access
Some models of the DPM allow you to connect a remote computer through DPM port to an ASCII craft port on another piece of equipment, such as a PABX or channel bank.

Discrete Control Module
The Discrete Control Module (DCM) is a full complement to the DPM and DPM-216, providing 2 alarm points and 16 controls.

1.2.1 Possible Applications

Telecommunications - The DPM is just right for remote cell sites and small offices, where 16 alarms and 2 controls are sufficient. In addition to pager reporting, the DPM may forward elected alarm points to a central network management system.

The DPM dials the master and reports with TRIP protocol or ASCII messages.

The DPM-216 contacts the master and reports with TBOS, DCP, DCPf, or DCPs protocol via RS232, RS422/485 or 202 modem on dedicated facility.

Agriculture - A DPM or DPM-216 in a barn or other out-building can notify you of an unauthorized entry, temperature extreme, fire, low water pressure, pump operation, etc. With the DPM’s remote control capability you can operate door locks, security lights and pumps.

Refrigeration - The DPM and DPM-216 can monitor freezer doors, temperature sensors, compressor operation and power lines to warn off-site personnel of impending problems, before they cause significant losses.

Fire and Safety - The DPM and DPM-216 can monitor smoke and sprinkler pressure alarms, door and window openings in industrial and commercial facilities, pin-pointing trouble spots for responding emergency teams, 24 hours a day.

1.3 Specifications

Alarm Point Inputs	16 optically-isolated bi-polar inputs. (Connect to Gnd and Batt to alarm.)
Uni-polar inputs.	(OPTIONAL; Close contact across terminals to alarm.)
TTL Inputs	(OPTIONAL) Referenced to +5 VDC through 2.2K ohm resistor
	Ground one side of input through TTL circuit to alarm
Dimensions	7.0"(L) X 5.0"(W) X 1.5"(D)
Relays	2, Form “A”
	Rated Load = 0.5A 125VAC, 1A 24VDC
	Contact Material = Gold-Clad Silver
	Max. Switching Power = 62.5VA, 30W
	Max. Switching Current = 1A
	Max. Switching Voltage = 60 VDC/125 VAC
	Max. Carrying Current = 2A
Mounting	Two keyhole mounting holes on back vertically spaced 1.75" apart.
Power Input	21ma @ +/-48 VDC (1 Watt)
	42ma @ -24 VDC (1 Watt)
	84 ma @ +/-12 VDC (1 Watt)
	A 120 VAC wall mount transformer is supplied with the -24 VDC unit.
Fuse	125 mA.
Heat Dissipation	35 BTU @ 24 or 48 VDC
Modem	212 “AT Type” 300/1200 Baud DTMF/Internal modem with DTMF Receiver
	Optional 2400 Baud modem.
DPM Protocols	T/Mon Remote Interface Protocol (TRIP), TAP Protocol (for Alpha Pagers),
	Numeric Pager, text message to cell phone, ASCII (Optional)
DPM-216 Protocols	TBOS, DCP, DCPf, DCPS
Connectors	Line = RJ12 (J5)
	Configuration or ASCII = Female DB9 (J3) - RS232 or RS485 (optional)
	Alarm/Control Points = Female DB37 (J1)
	Power = 3.5 mm Mono Jack or screw on (optional) (J4)
	Unused = Male DB9 (J2)
Comm. Facility Interface	RS232 (Option 1V)
(For the DPM-216 only)	202 - 1200 Baud modem (Option 2V)
	RS422/485 (Option 4V)
Operating Temp.	0 degrees to +60 degrees Celsius (32 degrees to 140 degrees F)
Humidity	0% to 95% non-condensing
	Shipping Weight - 4 lbs.
LEDs	14 front panel

1.4 Technical Description

The DPM and DPM-216 use a central microprocessor and interface circuitry for inputs/outputs. *Be careful to observe the polarity option for your unit.*

Alarm Inputs

The opto isolated alarm inputs are normally alarmed" when current is flowing. Alarm points can be individually reversed with the T/DPMW software to be "unalarmed" when no current is flowing. Each input can be configured for unipolar operation (reports going to alarm state only) or bi-polar operation (reports both going to alarm state and returning to cleared state). Each point can have a 30 character description, a qualification time period, backup reporting device number and redial function. Up to four reporting device dial-out numbers can be stored. The bi-polar inputs have both sides of the opto isolator brought to the connector, permitting ground or battery activation. (Refer to the input wiring details in Fig. 4 and to the Alarm Input Tutorial. "Bi-Polar Inputs" can be positive or negative.)

Control Outputs

Form-A contacts are provided, with normally open (N.O.) contacts brought out to pins on connector J1.

Bi-polar Operation and Unipolar Operation describe COS reporting methods. Bi-Polar input describes the electrical interface at the alarm input.

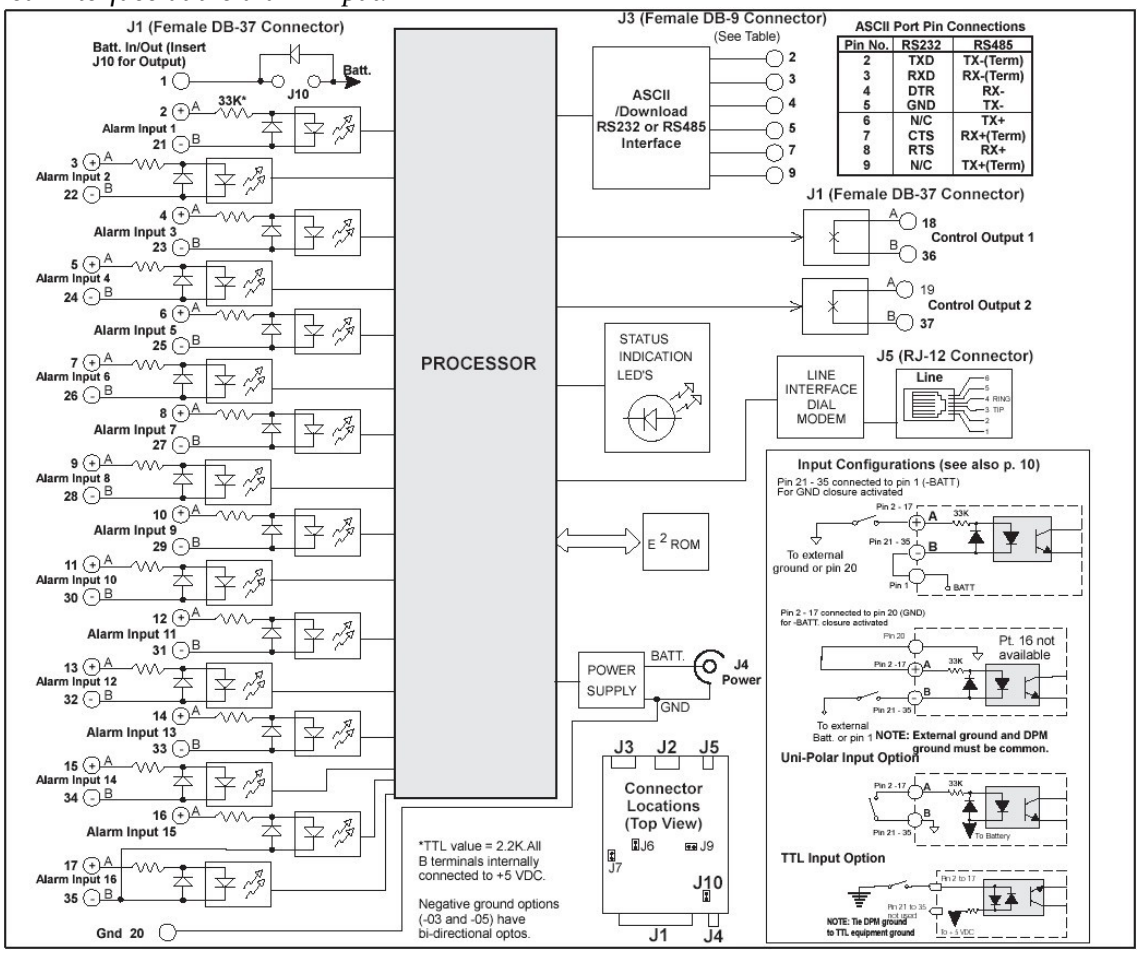

Fig. 2 – Block diagram/ functional schematic

1.4.1 DPM only

Alarms Sent to Pagers or Alarm Center

Reporting Devices -In the event of an alarm, the DPM dials out to either an alpha or numeric pager that displays the alarm message. It can also call a monitoring center equipped with a DPS T/MonXM or IAM alarm system or an in-house custom monitoring system. An ASCII reporting version is available that reports alarms to an ASCII terminal or to a PC programmed to act as an ASCII terminal (model D-PC-221-11A-04).

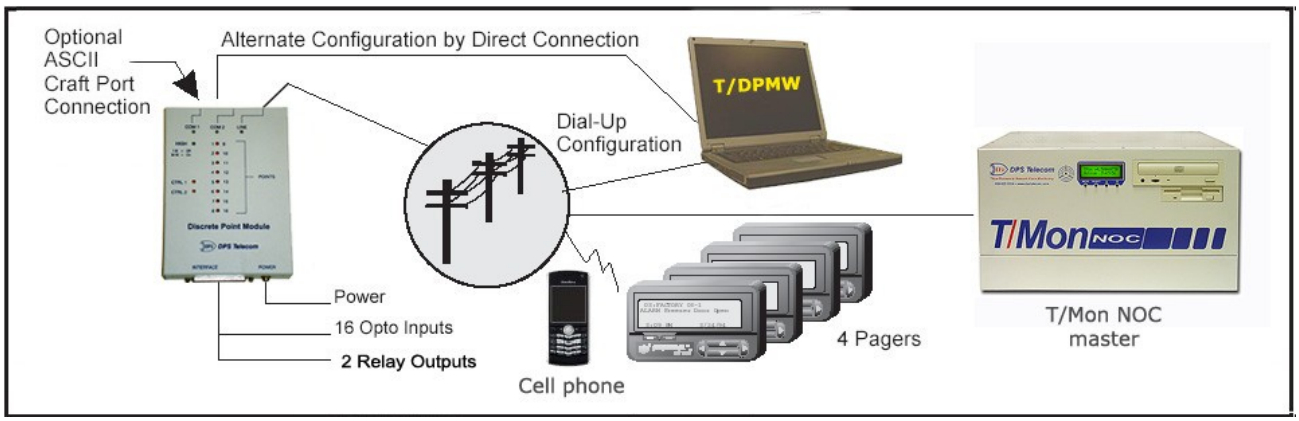

Fig. 3 Discrete Point Module reports alarms to a variety of devices.

1.5 Echo Mode Applications

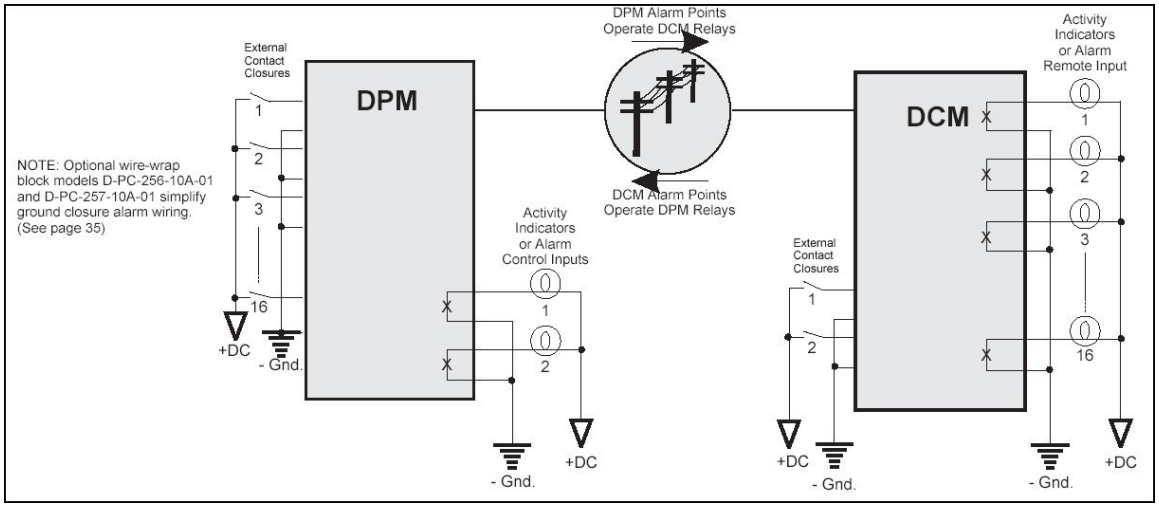

Fig. 4 – Echo application uses DPM and DCM back-to-back.

1.5.1 DPM in Echo Mode

In this application the DPM communicates via dial line with a Discrete Control Module (DCM). When the DPM detects an alarm, it dials the DCM. The DCM relays that correspond to the alarmed points operate, following the alarm inputs point-for-point. Likewise, the DCM's two alarm inputs operate the two respective relays at the DPM. This is especially useful in converting alarms between systems with unlike protocols or for transporting alarms from small remote sites to large, centrally located remotes or annunciator panels.

An optional **Wire Wrap Block** with two DB27 cables may be purchased to aid installation. Individual alarm and relay lines are wire wrapped to the Wire Wrap Block and the DB37 cable is plugged into the DPM, eliminating

soldering. Block supports 2 units.

1.5.2 DPM-216 in Echo Mode

In this application the DPM-216 communicates via a dedicated facility with a Discrete Control Module (DCM-216). When the DPM-216 detects an alarm, it reports directly to the DCM-216. The DCM-216 relays that correspond to the alarmed points operate, following the alarm inputs point-for-point. Likewise, the DCM-216's two alarm inputs operate the two respective relays at the DPM-216. This is especially useful in converting alarms between systems with unlike protocols or for transporting alarms from small remote sites to large, centrally located remotes or annunciator panels.

An optional **Wire Wrap Block** with two DB27 cables may be purchased to aid installation. Alarm and relay lines are wire wrapped to the Wire Wrap Block and the DB37 cable is plugged into the DPM, eliminating soldering. The block supports 2 units.

1.6 Installation

1. Unpack the DPM and all accessories. Check contents against the shipping list. The installer must provide alarm contacts (micro switches, relays, etc.) power source, and wires to the alarm and control points.
2. Mount the DPM. (Use enclosed mounting template and hardware.)
3. The DPM is shipped with all necessary cables for installation. These include the integral power cable/AC adaptor and the phone line cable. Refer to Fig. 5 in the Hardware Connections section to ensure a proper connection for each input.
4. **Wire Wrap Block:** If a wire-wrap block is used with the DPM, the next two steps will be performed. See wire-wrap manual for details.

   a.) Connect alarm points and controls to J1 on the DPM. A DB27 connector and hood are supplied with the DPM. Shunt J10 if power connects at the power jack and if pin 1 is used for biasing the alarm inputs to battery.

   b.) If using the wire-wrap block, plug the DB27 connector from the wire-wrap block into J1 on the DPM and connect the alarm and control points per the wire-wrap block operation guide. To operate an alarm, there must be a current path from the input pin to the alarm return pin. Example: To operate alarm point 5, pin 25 connects to negative battery (available at pin 1 - install J10 if the power jack is used), pin 6 connects to positive ground (available at pin 20) and the operating contact is placed in either leg. See Section 6.

5. *If using the wire-wrap block, DC power may be taken through the wire-wrap block at pins F-1 (+) and F-3 (negative ground). This arrangement utilizes the fusing provided on the wire-wrap block. Power will come to the DPM through connector J1 and it will not be necessary to use the AC adaptor.*
6. Connect the unit to the proper transport:

a.) **For the DPM**: Connect the RJ12 phone line to the DPM.

b.) **For the DPM-216:** Connect the RJ12 connector to the facility using the provided cable. The equipment end of the cable will need to be soldered to the appropriate connector (not included).

7. **AC Power**: Connect the power adapter to J4, then plug the adaptor into an AC outlet. If using a Wire-Wrap block, use J4 - do not run AC power through the block. Do not insert a "hot plug" into J4.
8. **DC Power**: If a DC supply is used power may be connected at J1 pin 1 (- BATT) and pin 20 (+ GND).

The DPM can only be configured with T/DPMW software through the unit's COM1 port **OR** via phone line. The DPM 216 **does not** have a dialup modem and can only be configured with T/DPMW through the COM1 port.

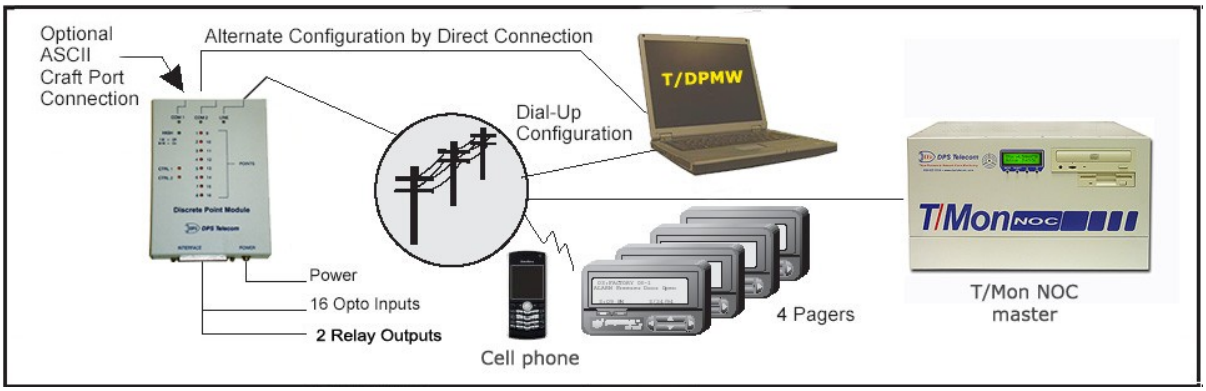

Fig. 5 – The DPM and DPM216 are configured with T/DPMW.

1.7 Hardware Connections for the DPM and DPM-216

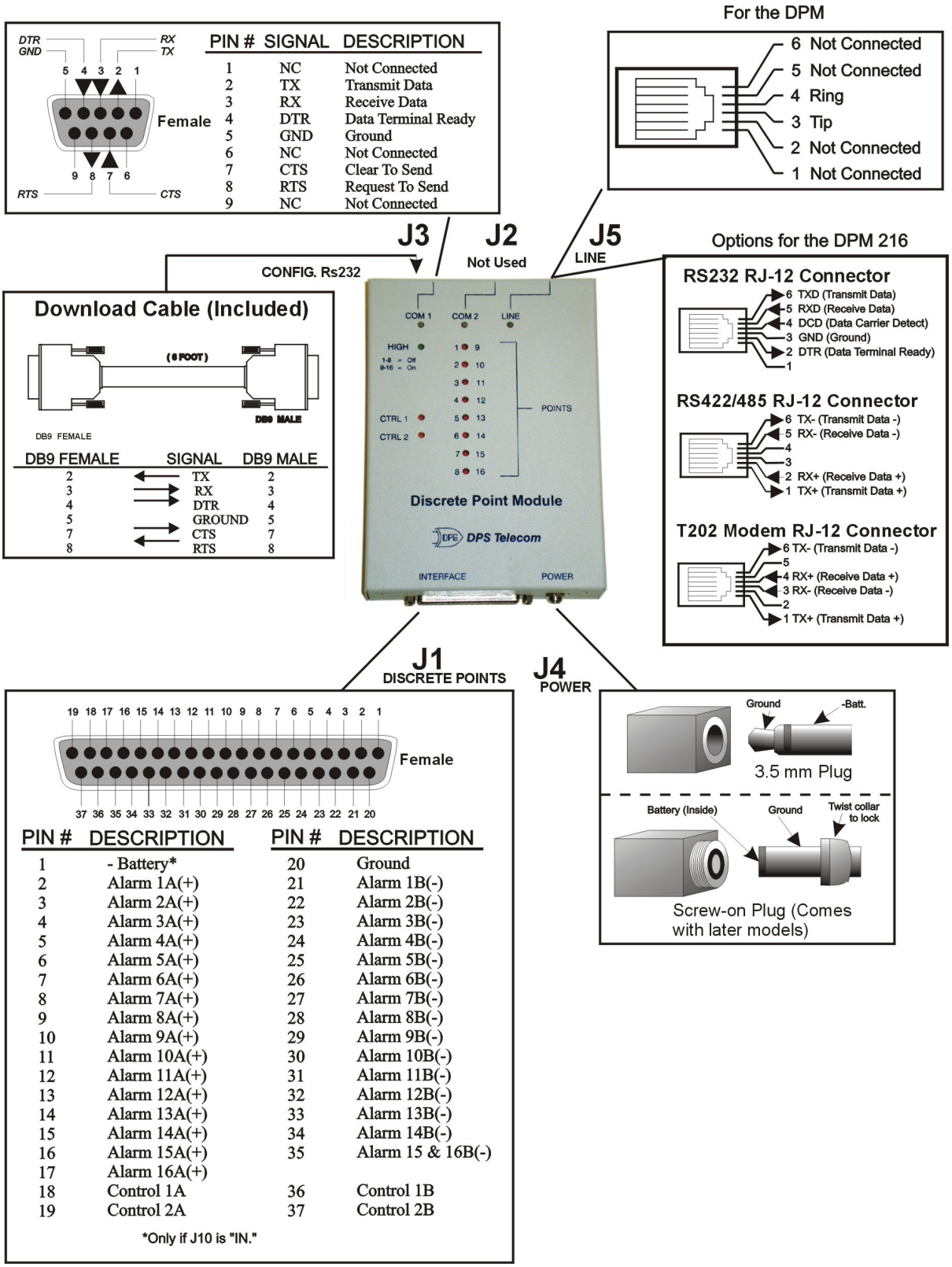

Fig. 6 – Discrete Point Module hardware connections.

1.8 Alarm Input Tutorial

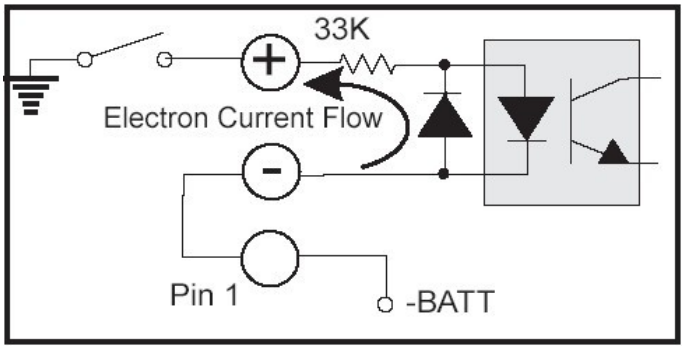

Fig. 7 - Current flow causes alarm

The DPM senses a change of state through current flow in the optical isolators. There are five types of alarm (current) sources for the DPM: dry contact, contact to battery, contact to ground, TTL outputs and dry contact (using DPM with internal jumper to battery).

The first three types apply to “regular” DPM’s; the last 2 apply to special options. Use Table A to find the pins to use for each input for the five types of alarm sources.

Table A - Alarm Input Connections for the Five Types of Alarm Sources

Alarm Point	Source Device Terminal	Dry Contact (DPM)		Contact to Battery (DPM)		Contact to Ground (DPM)		TTL (DPM)	Dry Contact* (J1 Pins)
^		J1 Pins	Jumper	J1 Pins	Jumper	J1 Pins	Jumper	(J1 Pins)	
1	A	2	21 to 1		2 to 20	2	21 to 1		2
^	B	20		21				2	21
2	A	3	22to 1		3 to 20	3	22 to 1		3
^	B	20		22				3	22
3	A	4	23 to 1		4 to 20	4	23 to 1		4
^	B	20		23				4	23
4	A	5	24 to 1		5 to 20	5	24 to 1		5
^	B	20		24				5	24
5	A	6	25 to 1		6 to 20	6	25 to 1		6
^	B	20		25				6	25
6	A	7	26 to 1		7 to 20	7	26 to 1		7
^	B	20		26				7	26
7	A	8	27 to 1		8 to 20	8	27 to 1		8
^	B	20		27				8	27
8	A	9	28 to 1		9 to 20	9	28 to 1		9
^	B	20		28				9	28
9	A	10	29 to 1		10 to 20	10	29 to 1		10
^	B	20		29				1-	29
10	A	11	30 to 1		11 to 20	11	30 to 1		11
^	B	20		30				11	30
11	A	12	31 to 1		12 to 20	12	31 to 1		12
^	B	20		31				12	31
12	A	13	32 to 1		13 to 20	13	32 to 1		13
^	B	20		32				13	32
13	A	14	33 to 1		14 to 20	14	33 to 1		14
^	B	20		33				14	33
14	A	15	34 to 1		15 to 20	15	34 to 1		15
^	B	20		34				15	34
15	A	16	35 to 1		16 to 20	16	35 to 1		16
^	B	20		35				16	35
16	A	17	35 to 1	Not Used		17	35 to 1		17
^	B	20						17	35

*Models with internal jumper to battery.

1.8.1 Dry Contacts

- Bus the negative side of the optical isolators for all points that use “dry contact” sources (J1 – pins 21-35) to battery. (Battery is normally available at J1-1. If the DPM power is connected to the jack (J4), jumper J10 should be shunted.) NOTE: “Battery” is negative for -12, -24 and -48 volt options, positive for +12 and +24 volt options. Positive battery options use bi-directional optical isolators, allowing “battery” to be connected to the negative side of the opto.
- Connect one side of the dry contact source to ground. (Ground at J1-20.)
- Connect the positive side of the optical isolator for the desired alarm point to the other side of the dry contact.

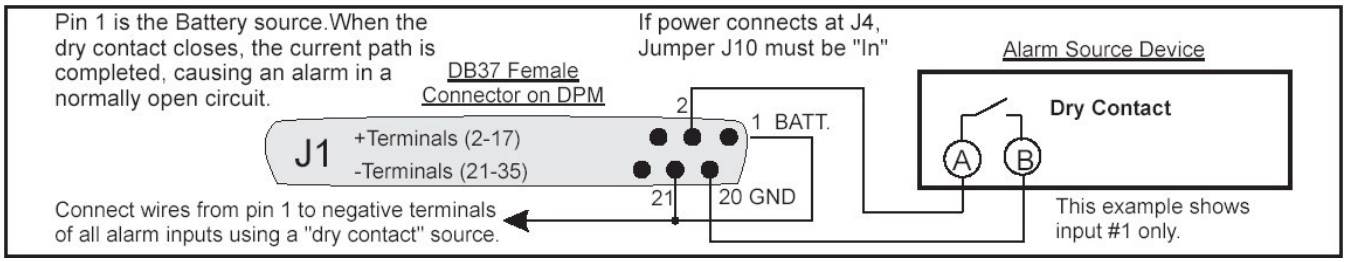
Pin 1 is the Battery source.When the dry contact closes, the current path is completed, causing an alarm in a normally open circuit.
DB37 Female Connector on DPM
If power connects at J4, Jumper J10 must be "In"
Alarm Source Device
J1
+Terminals (2-17)
-Terminals (21-35)
2
1 BATT.
21
20 GND
Dry Contact
A
B
Connect wires from pin 1 to negative terminals of all alarm inputs using a "dry contact" source.
This example shows input #1 only.

Fig. 8 – Dry contact source wiring.

Dry Contact (DPM only - Using DPM with internal jumper to battery)
Switch or relay with both leads at terminals. DPM inputs have one side of opto internally connected to battery, one input pin internally connected to ground.

- On those DPM options that have an internal jumper to battery, it is not necessary to add any external jumpers. All inputs apply a contact across pins 2 & 21, 3 & 22, 4 & 23, etc. All inputs must be the same type with this option.

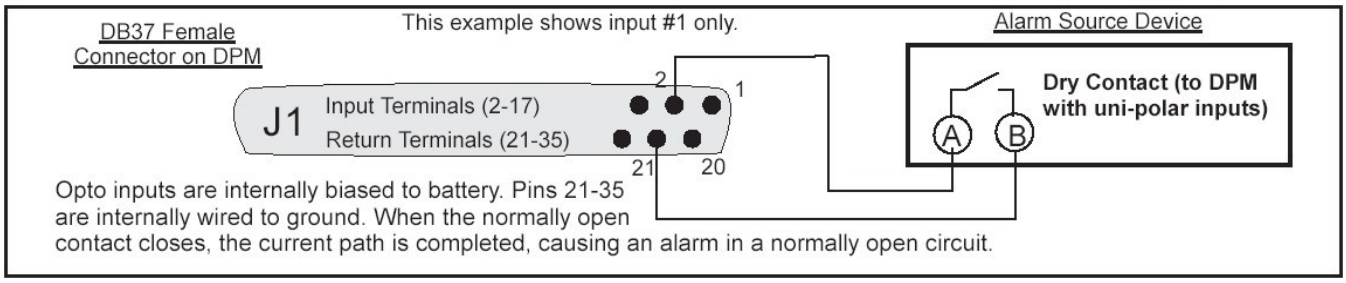
DB37 Female Connector on DPM
This example shows input #1 only.
Alarm Source Device
J1
Input Terminals (2-17)
Return Terminals (21-35)
2
1
21
20
Dry Contact (to DPM with uni-polar inputs)
A
B
Opto inputs are internally biased to battery. Pins 21-35 are internally wired to ground. When the normally open contact closes, the current path is completed, causing an alarm in a normally open circuit.

Fig. 9 - Dry contact (internal battery) source wiring.

1.8.2 Contact to Battery

- Bus the positive side of the optical isolators for all points that use “contact to battery” sources (J1 - pins 2-17) to ground. (Ground available at J1-20.) *NOTE: “Ground” is positive for -12, -24 and -48 volt options, negative for +12 and +24 volt options. Positive battery options use bi-directional optical isolators, allowing “ground” to be connected to the positive side of the opto.*
- Connect the negative side of the optical isolator for the desired alarm point to the source contact.
- NOTE: Input 16 cannot be used for this type of alarm source.

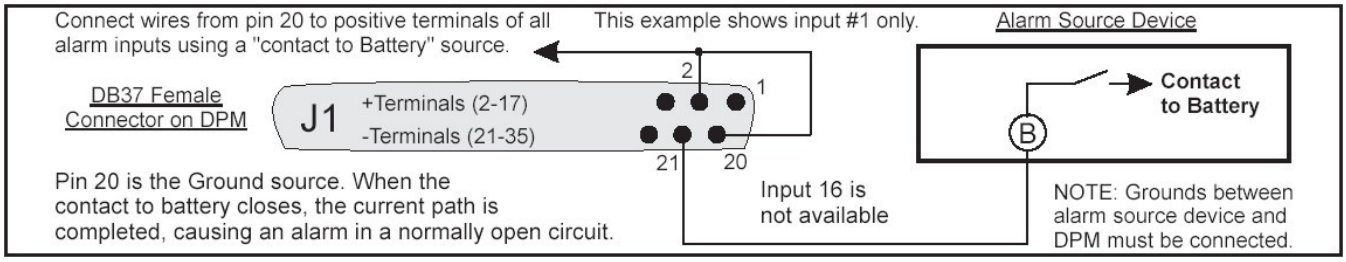
Connect wires from pin 20 to positive terminals of all alarm inputs using a "contact to Battery" source.
This example shows input #1 only.
Alarm Source Device
DB37 Female Connector on DPM
J1
+Terminals (2-17)
-Terminals (21-35)
2
1
21
20
Contact to Battery
B
Pin 20 is the Ground source. When the contact to battery closes, the current path is completed, causing an alarm in a normally open circuit.
Input 16 is not available
NOTE: Grounds between alarm source device and DPM must be connected.

Fig. 10 – Contact to battery source wiring.

1.8.3 Contact to Ground

- Bus the negative side of the optical isolators for all points that use “contact to ground” sources (J1 -pins 21-35) to battery. (Battery is normally available at J1-1. If the DPM power is connected to the jack (J4), jumper J10 should be shunted.) NOTE: “Battery” is negative for -12, -24 and -48 volt options, positive for +12 and +24 volt options. Positive battery options use bi-directional optical isolators, allowing “battery” to be connected to the negative side of the opto.
- Connect the positive side of the optical isolator for the desired alarm point to the source contact.

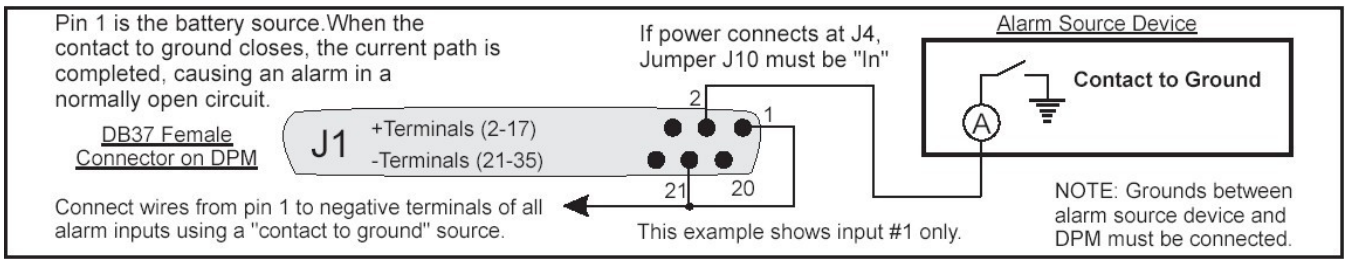
Pin 1 is the battery source.When the contact to ground closes, the current path is completed, causing an alarm in a normally open circuit.
If power connects at J4, Jumper J10 must be "In"
Alarm Source Device
Contact to Ground
A
DB37 Female Connector on DPM
J1
+Terminals (2-17)
-Terminals (21-35)
2
1
21
20
Connect wires from pin 1 to negative terminals of all alarm inputs using a "contact to ground" source.
This example shows input #1 only.
NOTE: Grounds between alarm source device and DPM must be connected.

Fig. 11 – Contact to ground source wiring.

1.8.4 TTL Output

DPM only: Transistor-**T**ransistor **L**ogic internally switches to negative ground. DPM inputs are internally biased to +5V. TTL source outputs require the TTL option. All sources must be TTL. Connect the alarm sources to pins 2 through 17. No jumpers are required.

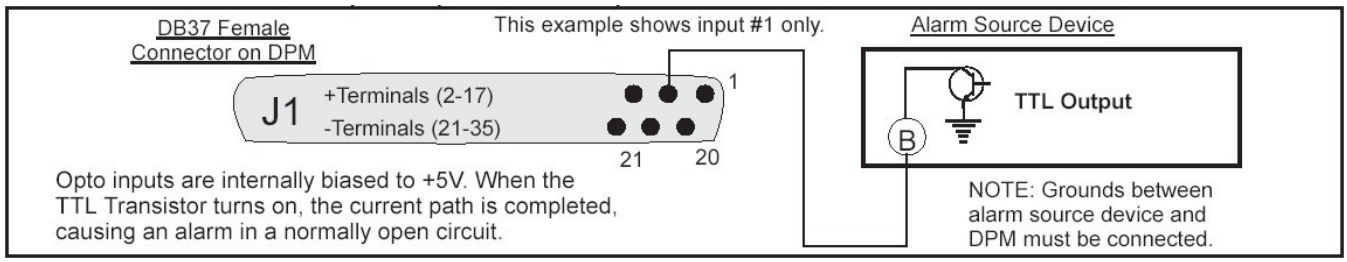
DB37 Female Connector on DPM
This example shows input #1 only.
Alarm Source Device
J1
+Terminals (2-17)
-Terminals (21-35)
1
21
20
TTL Output
B
Opto inputs are internally biased to +5V. When the TTL Transistor turns on, the current path is completed, causing an alarm in a normally open circuit.
NOTE: Grounds between alarm source device and DPM must be connected.

Fig. 12 - TTL source wiring

1.9 How To Read Pager Displays (For the DPM only)

This section shows you what to expect when receiving pager notifications from alphanumeric and numeric pagers. You will also see where and how to define these pager properties using T/DPMW software. For more information, please see the separate user manual for T/DPMW.

1.9.1 Alphanumeric Pager

Alphanumeric pagers show both Change of State (COS) and Status reports. Refer to Fig.13. The appearance of the report may vary depending on the pager and pager company, but the order in which the information is presented will remain the same.

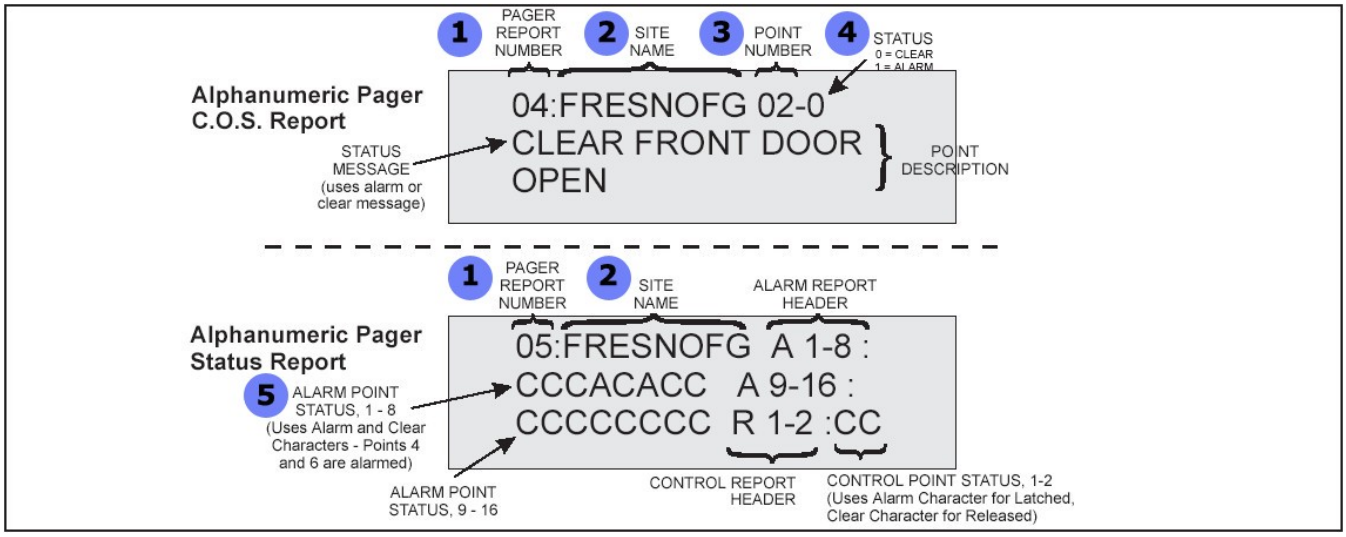

Fig. 13 - Alphanumeric pager shows both COS and Status Reports

1.9.2 Numeric Pager

Numeric pagers also show Change of State (COS) and Status reports. Refer to Fig. 14. The appearance of the report may vary depending on the pager and pager company, but the order in which the information is presented will remain the same.

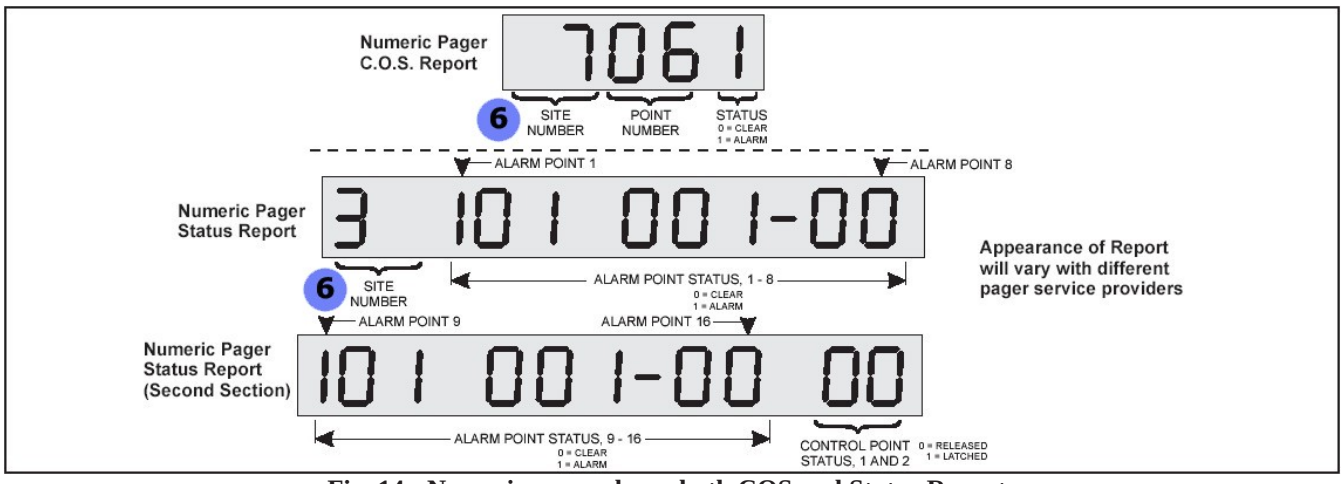

Fig. 14 - Numeric pager shows both COS and Status Reports

Pagers Reference Guide for T/DPMW

1	**Pager Report Number**	Defined in the Pagers tab
2	**Site Name**	Defined in the Site Definition tab > Description
3	**Point Number**	Defined in the Alarms tab
4	**Point Description**	Defined in the Alarms tab
5	**Alarm Point Status**	Defined in Pagers tab > Advanced > Periodic Reporting Options
6	**Site Number**	Defined in Site Definition tab > Site #

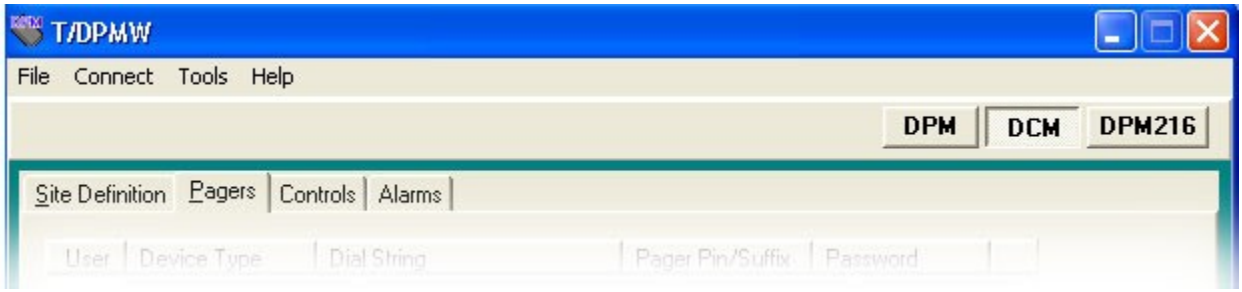

Fig. 15 – Tabs in T/DPMW

1.9.3 ASCII Terminal

ASCII output can be used to report alarms to computers running custom monitoring, capture files and printer logging. (-97 option)
The alarm message format for an ASCII device is:

SITE PNT-STATUS [ALM MSG / CLR MSG] DESCRIPTION
<CR><LF><CR><LF>
Example: **FRESNO 02-0 CLEAR Freezer Door Left Open**

Site is Fresno; Point number is 02; 0 is no alarm (1 is alarm) CLEAR is Clear Message, “Freezer Door Left Open” is point description.

1.10 Operation

Change of State relay

If Control Output 1 is programmed to indicate COS alarms, the relay will latch when an alarm point changes state. It will pulse each time another point changes state. It will release when all alarms are acknowledged.

Monitor Mode

Monitor Mode viewed while connected with T/DPM W software allows you to view the alarm and control point status with the configuration computer. **Note for the DPM-216:** *Caution - When in Monitor Mode, reporting to the master is suspended.*

1.10.1 For the DPM only

Direct DTMF Dial In - *How to Call In with a Tone Dial Phone*

- Upon answering a call, the DPM beeps twice. Enter your Pager Number (1-4) and User ID code (see Table B, lines 13 and 17), then press "#." If the code is valid, you will hear two beeps. NOTE: ASCII terminals have a "pager number."
- Any other response means the code was invalid. Two attempts are allowed before DPM hangs up. Fifteen seconds is allowed between commands.
- Enter any of the commands listed in Table F. You do not have to hang up and re-dial to enter additional commands.

Table C - Tone Dialing Operating Commands

Command	Description
1#..16#	Acknowledge Point 1..16
80#	Release Relay 1
90#	Release Relay 2
81#	Latch Relay 1
91#	Latch Relay 2
82#	Momentarily operate Relay 1
92#	Momentarily operate Relay 2
66#	Request status report (sent to pager after phone is hung up.)
77#	Acknowledge all COS alarms.
68#	Connect to ASCII port (models D-PC-221-10A-12 and -14, 228-series models). See Section 10.4 for special instructions for 228-series models.
69#	Connect Modem for normal TRIP reporting.

Note: The pager number and User ID Code are the assignments specified in the Pager Information Section of the T/DPMWW software. (See Table B, lines 13 and 17.) In the screen below, the User ID for Pager Number 1 is 123, for pager 2 if 665, for pager 3 is 667 and for pager 4 is 668.

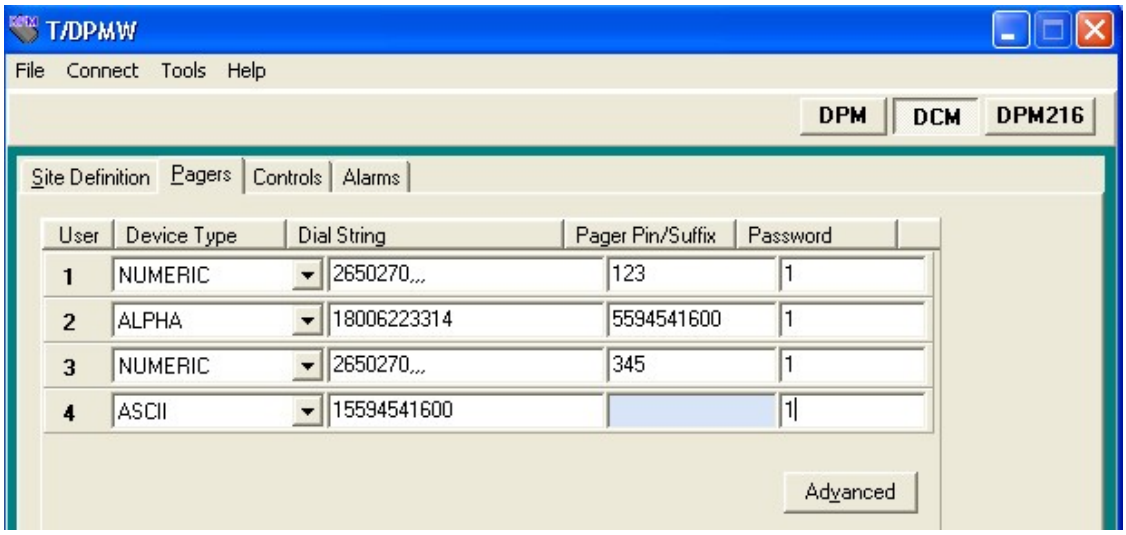

Fig. 16 – Edit Pager Information screen shows pager number and User ID Code assignments.

How to Acknowledge Alarms

Once logged into the DPM, acknowledge alarm points by pressing the respective alarm point number, followed by "#". If the entry is valid, you will hear 2 beeps. Any other response means the entry was invalid.

How to Issue Controls
To activate controls, enter the desired control command from the DTMF Dial In list. (i.e. 91# latches relay 2).

ASCII Control (228-Series Models)
The DPM 228 series models can be used to access an ASCII craft port via the ASCII/Download port (J3). The following paragraphs explain the commands to enter at an ASCII terminal when performing this function.

To Connect:
When connecting to the unit, the logon sequence determines whether you will be connecting to the alarm inputs via TRIP protocol or to the craft port.

- A69# code will connect to TRIP and a 68# code will connect to the Craft Port.
- EXAMPLE: atdt 123-4567@11#,69# connects TRIP
  atdt 123-4567@11#,68# connects Craft Port.

Serial Line Command Mode
- After the CONNECT message the prompt appears
  ^M^J>
- COMMANDS: Valid commands at the prompt are:
  C^M connect to Craft Port
  H^M Hang Up

Craft Port Parameters
BxDxPx^M set data rate (Baud), data word length and parity.

Bx: x = 1 = 300 Baud
2 = 600 Baud
3 = 1200 Baud
4 = 2400 Baud
5 = 4800 Baud
6 = 9600 Baud
7 = 19200 Baud
Dx: x = 7 = 7 data bits
8 = 8 data bits
Px: x = N = No parity
E = Even parity
O = Odd parity

Command Line Error
If an invalid command line is detected the unit echos a "?", then the prompt.
?^M^J>

Attention Sequence
500ms silence - @@@ - 500 ms silence
After the unit is connected to the craft port this will re-establish the Serial Command Line (to change Port Parameters or to hang up).

Loss of Carrier
If the carrier is lost the unit will hang up.

Recommended Modem Initialization String
ATHEQVX4F1TS0=0S8=5&C1&D3

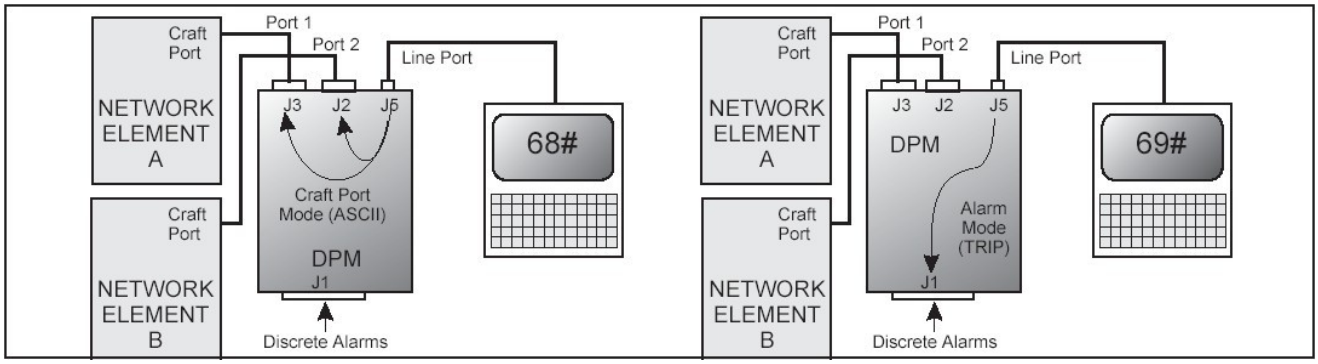

Fig. 18 - Keyboard commands from an ASCII terminal can switch line Line Port from Craft Port access (ASCII) to Discrete Alarm Point access (TRIP).

1.10.2 ASCII Control (228-Series Models)

The DPM 228 series models can be used to access an ASCII craft port via the ASCII/Download port (J3). The following paragraphs explain the commands to enter at an ASCII terminal when performing this function.

To Connect:
When connecting to the unit, the logon sequence determines whether you will be connecting to the alarm inputs via TRIP protocol or to the craft port.

- A 69# code will connect to TRIP and a 68# code will connect to the Craft Port.
- EXAMPLE: atdt 123-4567@11#,69# connects TRIP
  atdt 123-4567@11#,68# connects Craft Port.

Serial Line Command Mode
- After the CONNECT message the prompt appears
  ^M^J>
- COMMANDS: Valid commands at the prompt are:
  C^M connect to Craft Port
  H^M Hang Up

Craft Port Parameters
BxDxPx^M set data rate (Baud), data word length and parity.

Bx: x = 1 = 300 Baud
2 = 600 Baud
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4 = 2400 Baud
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6 = 9600 Baud
7 = 19200 Baud

Dx: x = 7 = 7 data bits
8 = 8 data bits

Px: x = N = No parity
E = Even parity
O = Odd parity

Command Line Error
If an invalid command line is detected the unit echos a "?", then the prompt.
?^M^J>

Attention Sequence
500ms silence - @@@ - 500 ms silence

After the unit is connected to the craft port this will re-establish the Serial Command Line (to change Port Parameters or to hang up).

Loss of Carrier
If the carrier is lost the unit will hang up.

Recommended Modem Initialization String
ATHEQVX4F1TS0=0S8=5&C1&D3

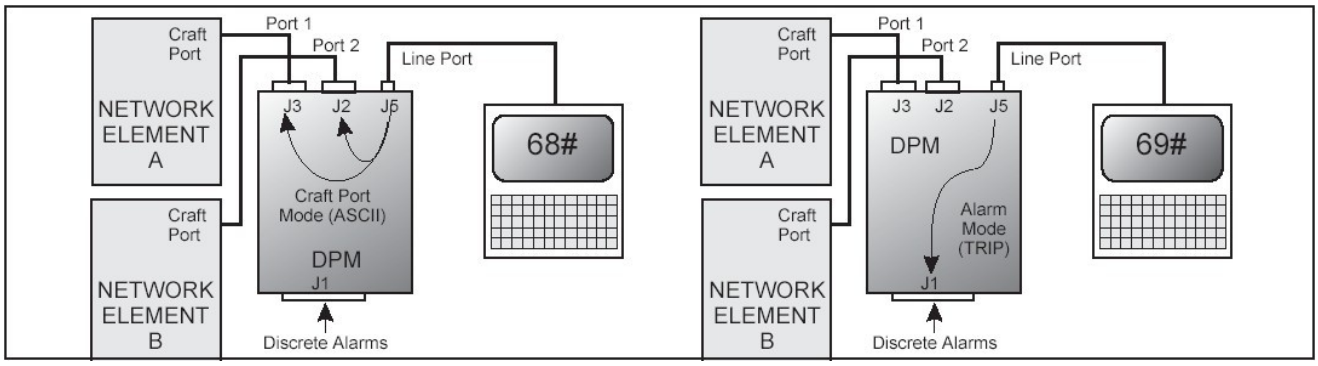


Fig. 17 - Keyboard commands from an ASCII terminal can switch line Line Port from Craft Port access (ASCII) to Discrete Alarm Point access (TRIP).

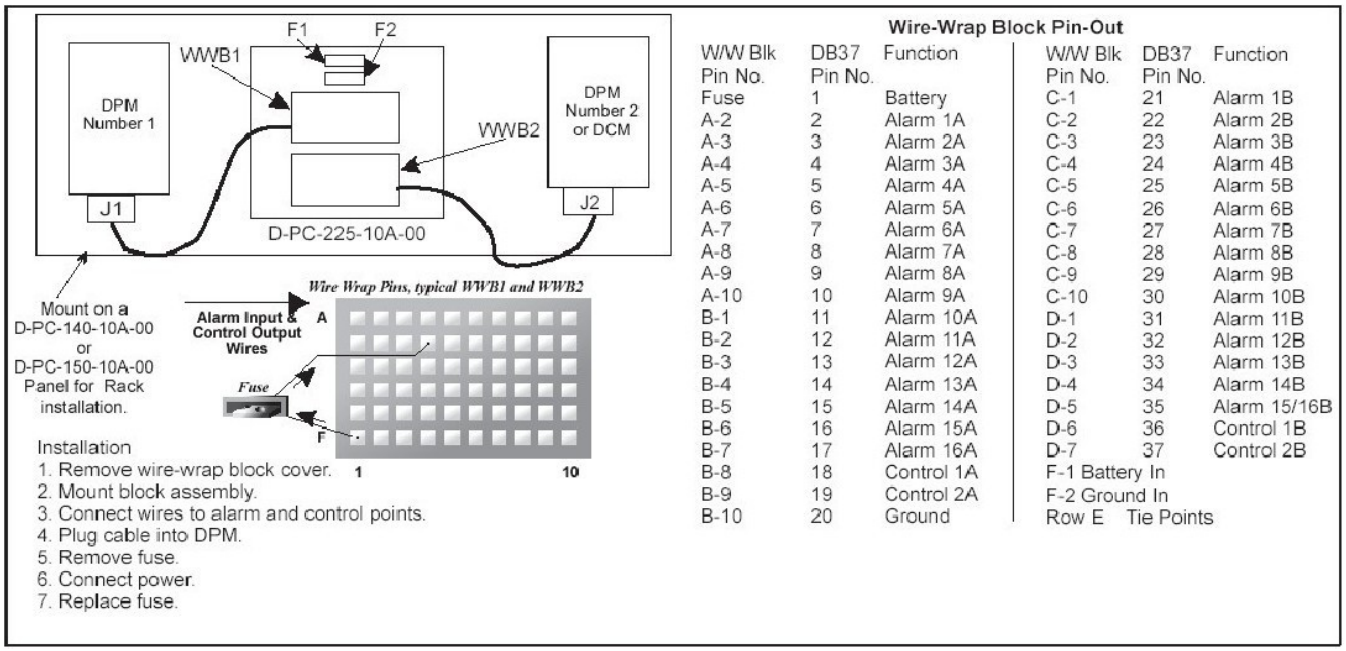
1.11 LED Display Descriptions

Indicators on the front panel give maintenance personnel quick diagnostics of the DPM. Refer to Table D for an explanation of the display.

Table D - LED Display Descriptions

LED	Status	Meaning
COM1	Flashing Red/Green	Data traffic on COM1 (Configuration port - J3 / ASCII for DPM only)
	Off	No traffic on COM1
COM2	Off	COM2 has no function on the DPM or DPM-216
LINE	Flashing Red/Green	*For DPM*: Dialing *For DPM-216*: Data being exchanged with the monitoring device (alarm master)
	Blinking Red	*For DPM*: Waiting to redial *For DPM-216:* Transmitting data
	Blinking Green	*For DPM:* Connected to line for incoming function from T/DPMW, DTMF phone or T/Mon *For DPM-216*: Receiving data
	Solid Green	*For DPM*: Off hook, connected to line for dial-out function.
	Off	Data port is idle
HIGH	Off	Status LEDs show points 1-8
	Solid Green	Status LEDs show points 9-16
POINTS 1-16	Solid Red	Alarm at point (see status of HIGH LED) .
	Off	Point is normal.
CTRL 1	Solid Yellow	Control point 1 is active
	Off	Control point 1 is inactive
CRTL 2	Solid Yellow	Control point 2 is active
	Off	Control point 2 is inactive.

1.12 Reference Section



Wire-Wrap Block Pin-Out

W/W Blk Pin No.	DB37 Pin No.	Function	W/W Blk Pin No.	DB37 Pin No.	Function
Fuse	1	Battery	C-1	21	Alarm 1B
A-2	2	Alarm 1A	C-2	22	Alarm 2B
A-3	3	Alarm 2A	C-3	23	Alarm 3B
A-4	4	Alarm 3A	C-4	24	Alarm 4B
A-5	5	Alarm 4A	C-5	25	Alarm 5B
A-6	6	Alarm 5A	C-6	26	Alarm 6B
A-7	7	Alarm 6A	C-7	27	Alarm 7B
A-8	8	Alarm 7A	C-8	28	Alarm 8B
A-9	9	Alarm 8A	C-9	29	Alarm 9B
A-10	10	Alarm 9A	C-10	30	Alarm 10B
B-1	11	Alarm 10A	D-1	31	Alarm 11B
B-2	12	Alarm 11A	D-2	32	Alarm 12B
B-3	13	Alarm 12A	D-3	33	Alarm 13B
B-4	14	Alarm 13A	D-4	34	Alarm 14B
B-5	15	Alarm 14A	D-5	35	Alarm 15/16B
B-6	16	Alarm 15A	D-6	36	Control 1B
B-7	17	Alarm 16A	D-7	37	Control 2B
B-8	18	Control 1A	F-1 Battery In		
B-9	19	Control 2A	F-2 Ground In		
B-10	20	Ground	Row E Tie Points		

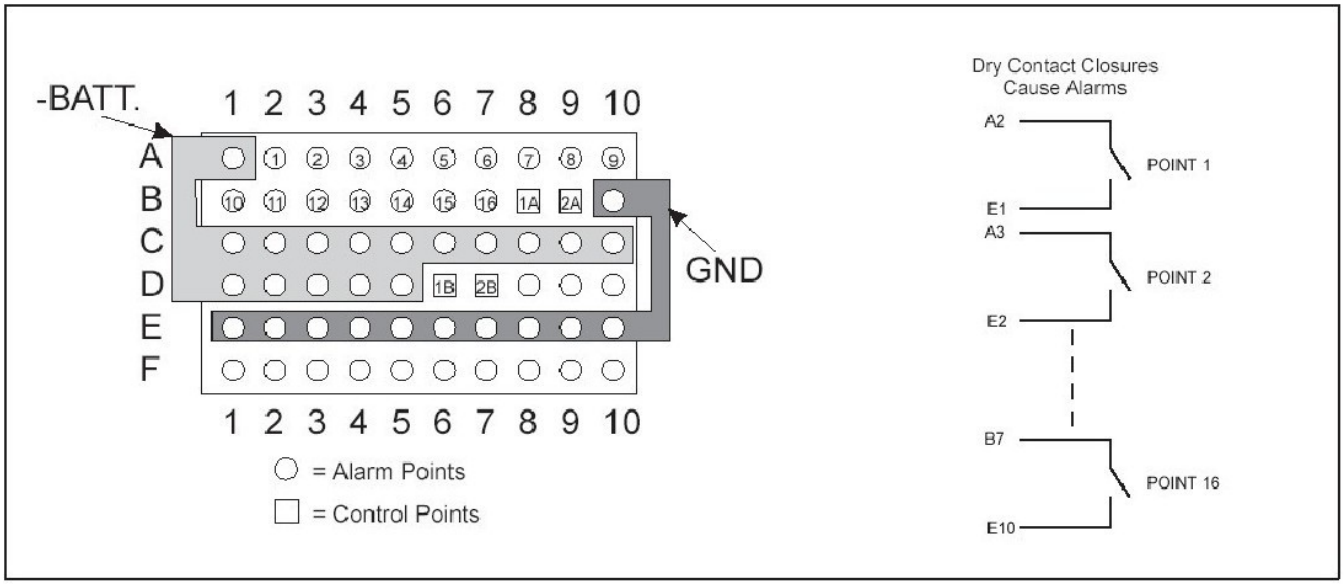


Fig. 19 - Wire-wrap block models D-PC-256-10A-01 and D-PC-257-10A-01 provide jumpers on blocks that simplify wiring for ground-closure alarms.

1.12.1 For the DPM only

Modem Initialization Strings
The following table lists some initialization strings for commonly used modems found in PC's running T/DPMW.

Table E – Modem Initialization Settings

Modem Model	Initialization String
A.T.&T. Paradyne PCMCIA 3760/62/63/64	AT V1 X4 Q0 SR41=3\Q0\N1
Hayes Accura	AT S7=120 E1 V1 M1 Q0 X4 &Q0 or AT&Q0
Intel Satisfaction (400 and 400E)	ATS7=120E1V1M1QX4\N\Q%C0%E-J&Q
Intel 14/14E	ATB5S7=120E1V1Q0X4\G\V\N%C-J
US Robotics Sportster 14400	AT &M0 &K0 E1 V1 Q0 X4
Paradigm 14400	ATS7=120E1\G1%B1200%C0\N1
Megahertz PCMCIA CC3144	AT &F &C1 &D2 &Q &K &S1 W2 S95=\N# C\
Compaq 14.4 laptop	AT S7=120 E1 V1 M1 Q0 X4 \N1%C0\Q0
DPM Factory Default	AT S7=120 E1 V1 M1 Q0 X4

Example of a Modem Problem
The following is an example of a common modem problem due an initialization string error:
With the modem's audible monitor enabled, you can hear the modem dial and the response tone from the DPM when it answers. But instead of a "connect" message you get a "no carrier" message. This is generally caused by a high speed modem taking too long to negotiate speed and protocol.

Check the modem initialization string in Table E. If your modem is not listed in Table E, consult your modem manual. Be sure that flow control, compression and error correction are off. If difficulty persists, contact DPS Customer Support. Please have your modem manual handy.

1.12.2 Troubleshooting

Problem: DPM-216 won't connect with configuration computer.
Answer: Check port configuration on PC.

Problem: Alarm input points don't trigger (watching with T/DPMW)
Answer 1: Verify that the alarms are wired properly. A simple closure across the A and B side of the inputs will not cause an alarm.
Answer 2: If alarms are wired properly, and J1-1 is wired to bias the alarm points, jumper J10 must be removed.

2 Technical Support

DPS Telecom products are backed by our courteous, friendly Technical Support representatives, who will give you the best in fast and accurate customer service. To help us help you better, please take the following steps before calling Technical Support:

1. Check the DPS Telecom website.
You will find answers to many common questions on the DPS Telecom website, at **http://www.dpstelecom.com/support/**. Look here first for a fast solution to your problem.

2. Prepare relevant information.
Having important information about your DPS Telecom product in hand when you call will greatly reduce the time it takes to answer your questions. If you do not have all of the information when you call, our Technical Support representatives can assist you in gathering it. Please write the information down for easy access. Please have your user manual and hardware serial number ready.

3. Have access to troubled equipment.
Please be at or near your equipment when you call DPS Telecom Technical Support. This will help us solve your problem more efficiently.

4. Call during Customer Support hours.
Customer support hours are Monday through Friday, from 7 A.M. to 6 P.M., Pacific time. The DPS Telecom Technical Support phone number is **(559) 454-1600**.

Emergency Assistance: *Emergency assistance is available 24 hours a day, 7 days a week. For emergency assistance after hours, allow the phone to ring until it is answered with a paging message. You will be asked to enter your phone number. An on-call technical support representative will return your call as soon as possible.*

3 Warranty

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In Case of Failure

If a product should fail while in service contact DPS Telecom. for technical support. Many problems are fixed with a simple phone call. Have available the invoice to determine if the product is under warranty. If the problem cannot be solved over the telephone and the product is in warranty, DPS Telecom. will authorize the return of the product for service and will provide shipping information. If the product is out of warranty repair charges will be quoted and repairs will be made after the charges are authorized by the customer. All non-warranty repairs receive an additional 90-day warranty.

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